~~1. Method for the multi fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences, where the excitation wave lengths for the individual fluorophores, delayed through an optical delay (4) in the range of sub nanoseconds to some milliseconds, are conducted to the objects of examination (7) so that the fluorescences can be excitated and detected one after the other and where, for he differentiation between at least two fluorophores in addition to their spectral characteristics, the decay behaviour of the fluorescence processes is examined by the displacement of electronic gates in the nanosecond range along a timing axis.~~

~~2. Method for the multi fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences, where the excitation wave lengths for the individual fluorophores, delayed through an optical delay (4) in the range of sub nanoseconds to some milliseconds, are conducted to the objects of examination (7) so that the fluorescences can be excitated and detected one after the other.~~

3. (amended) ~~Method~~ A method for the multi-fluorescence detection of fluorophores by means of a simultaneous measurement

of the decay time of the fluorescences where, for the differentiation between at least two fluorophores in addition to their spectral characteristics, the decay behaviour of the fluorescence processes is examined by the displacement of electronic gates in the nanosecond range along a timing axis.

4. (amended) ~~Method~~ The method according to Claim ~~1 and~~ 3, wherein the delay (4) is formed by light wave conductors.

5. (amended) ~~Method~~ The method according to Claim ~~2 and~~ 3, wherein the electronic time gate is positioned in the maximum of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect fast decaying fluorescence processes.

6. (amended) ~~Method~~ The method according to Claim ~~2 and~~ 3, wherein the electronic time gate is positioned in the fade-out of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect slow decaying fluorescence processes.

7. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein several different fluorescence colouring materials are detected in the liquid chromatography.

8. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein fluorescence colouring materials are detected in multi-well plates.

9. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein a multiple fluorescence detection is carried out on living/dead tissue.

10. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein a multi fluorescence detection is carried out on planar, particular, fibrillar carriers such as DNA-/protein-chip.

11. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein the method is image-rendering and the detector is a camera.

12. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein a multiple fluorescence detection and an end-point determination is carried out during the PCR, particularly quantitative and multiplex PCR.

13. (amended) ~~Method~~ The method according to ~~the Claims 1 to~~ Claim 3, wherein several fluorescence colouring materials are detected in electrophoresis gels, electrophoresis capillaries and electrophoresis blots.

14. (new) A method for the multi-fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences, where the excitation wave lengths for the individual fluorophores, delayed through an optical delay (4) in the range of sub-nanoseconds to some milliseconds, are conducted to the objects of examination (7) so that the fluorescences can be excited and detected one after the other.

15. (new) The method according to claim 14, wherein for the differentiation between at least two fluorophores in addition to their spectral characteristics, the decay behaviour of the

fluorescence processes is examined by the displacement of electronic gates in the nanosecond range along a timing axis.

16. (new) The method according to Claim 14, wherein the delay (4) is formed by light wave conductors.

17. (new) The method according to Claim 14, wherein the electronic time gate is positioned in the maximum of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect fast decaying fluorescence processes.

18. (new) The method according to Claim 14, wherein the electronic time gate is positioned in the fade-out of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect slow decaying fluorescence processes.

19. (new) The method according to the Claim 14, wherein several different fluorescence colouring materials are detected in the liquid chromatography.

20. (new) The method according to the Claim 14, wherein fluorescence colouring materials are detected in multi-well plates.

21. (new) The method according to the Claim 14, wherein a multiple fluorescence detection is carried out on living/dead tissue.

22. (new) The method according to the Claim 14, wherein a multi fluorescence detection is carried out on planar, particular, fibrillar carriers such as DNA-/protein-chip.

23. (new) The method according to the Claim 14, wherein the method is image-rendering and the detector is a camera.

24. (new) The method according to the Claim 14, wherein a multiple fluorescence detection and an end-point determination is carried out during the PCR, particularly quantitative and multiplex PCR.

25. (new) The method according to the Claim 14, wherein several fluorescence colouring materials are detected in

electrophoresis gels, electrophoresis capillaries and electrophoresis blots.